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EXAMINER	
BRUNSMAN, DAVID M	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/801,424
Filing Date: March 16, 2004
Appellant(s): HU ET AL.

Charles A Cross
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 3-20-2009 appealing from the Office action mailed 8-18-2008.

The appeal brief is filed in the new format under the revised BPAI final rule before the effective date of the BPAI final rule. The Office published the BPAI final rule to amend the rules governing practice before the BPAI in *ex parte* patent appeals. *See Rules of Practice Before the Board of Patent Appeals and Interferences in Ex Parte Appeals; Final Rule, 73 FR 32938 (June 10, 2008), 1332 Off. Gaz. Pat. Office 47 (July 1, 2008).* However, the effective date for the BPAI final rule has been delayed. *See Rules of Practice Before the Board of Patent Appeals and Interferences in Ex Parte Appeals; Delay of Effective and Applicability Dates, 73 FR 74972 (December 10, 2008).* In the notice published on November 20, 2008, the Office indicated that the Office will not hold an appeal brief as non-compliant solely for following the new format even though it is filed before the effective date. *See Clarification of the Effective Date Provision in the Final Rule for Ex Parte Appeals, 73 FR 70282 (November 20, 2008).* Since the appeal brief is otherwise acceptable, the Office has accepted the appeal brief filed by appellant.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

The amendment after final rejection filed on 11-18-2008 has been entered.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

WITHDRAWN REJECTIONS

The following grounds of rejection are not presented for review on appeal because they have been withdrawn by the examiner. The rejection of claims 1-22, 25-29 and 31-39 under section 102 and /or 103over Nakaoka, alone.

(7) Claims Appendix

The statement of the status of claims contained in the brief is correct.

(8) Evidence Relied Upon

The following is a listing of the evidence (e.g., patents, publications, Official Notice, and admitted prior art) relied upon in the rejection of claims under appeal.

US 4627911 Chen et al 12-1986

US 5686374 Nakaoka et al 11-1997

"Fluidization Engineering", Geldart, Butterworth-Heinemann, 2nd edition, 1991, pp-79-79 & 93.

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-29 and 31-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakaoka, as applied above, in view of Chen et al (US 4627911).

Nakaoka discloses a catalyst containing a plurality of particles comprising zeolite Y having a unit cell size similar to the instant claims, including the forms HY and USY; alumina and zinc oxide. See the abstract. The zeolite contains less than 0.5 wt% Na20, In the catalyst of examples 4 and 6, for instance, including 75% alumina, where the zeolite comprises 15% of the composition the amount of Na2O would be about 0.075% (0.15 x 0.50% = 0.075%) which anticipates the amount of Na20 recited in the instant claims 2-7, 29 and 33-36. There is no disclosed Na2O in the remaining components of the composition of the reference. Nor, is there evidence of record that despite the lack of any disclosure of significant Na2O content, one of ordinary skill in the art would have

reason to assume the other components of the reference include a significant amount of Na2O. Overlapping ranges have been held to establish *prima-facie* obviousness. See MPEP 2144.05. The reference does not describe that the alumina/zinc oxide components as containing Lewis acid sites. However, these materials are the same as the presently claimed components and therefore would be expected to have the same properties including Lewis Acid sites. Applicant has presented no evidence that the prior art product cannot be maintained in a fluidized state, larger particles simply requiring correspondingly more powerful gasflow. The "Fluidization Engineering" document cited by applicant, and first argued as supporting patentability by applicant, demonstrates that compositions of particle sizes similar to that of Nakaoka fall with the scope of "fluidizable" as falling within the classification of "Geldart D" particles which are "difficult to fluidize". This reference is considered to demonstrate the level of ordinary skill in the art. Page 79 of the document, nevertheless, teaches various methods by which such particles are fluidized. The instant claims are not limited to the preferred embodiments of the specification but, must be read to include any particle size that is fluidizable, even if difficultly so.

The difference between Nakaoka and the instant claims that explicitly recite a particle size (20-150 microns) is that the examples of Nakaoka recite a particle size of the product composition of 1.6mm. Chen et al (US 4627911) teach that zeolite catalysts for catalytic cracking of hydrocarbons are generally no smaller than $1/25^{th}$ of an inch for fixed beds and range from 1-140 microns, with an average particle size of 62 microns in FCC cracking operations at column 1, lines 27-33.

It would have been obvious to one of ordinary skill in the art to modify the examples of Nakaoka to a particle size of 62 microns because Chen et al teaches that is most useful for FCC operations. Chen exemplifies a particular case of the general teaching of "Fluidization Engineering"; showing that the efficiency of a fluidized bed operation is maximized when the particles fall within the "Geldart A" classification.

(10) Response to Argument

Applicant argues that the intended use within an FCC apparatus distinguishes the claimed catalyst from the prior art. The examiner has shown how adapting the catalyst of Nakaoka et al to FCC conditions would have been obvious to one of ordinary skill in the art.

Applicant argues that keeping sodium levels to 0.20 weight % of less is critical to the instant invention. The examiner has convincing demonstrated that the prior art relied upon has sodium levels of less than 0.20 wt.%.

Applicant argues that the catalyst of Nakaoka et al is formulated for fixed beds and unsuitable for FCC operations. The examiner's statement of rejection clearly sets forth the reasons why one of ordinary skill in the art would modify the reference to make it more suitable for use in a fluidized bed. In short, the primary reference teaches a catalyst composition chemically similar and having the same microstructure as applicant's claims but, differing in particle size as its intended use is in a fixed bed. The prior art of record clearly teaches that while larger particles may be fluidized, the most efficient particles size for use in fluidized beds is about 62 microns.

Applicant argues that the examiner relies upon impermissible hindsight with respect to zinc oxide as a Lewis acid in Nakaoka et al. There is no hindsight reconstruction of the reference here. Zinc oxide is a explicitly specified component of the prior art and its property of being a Lewis acid inherently tied to its identity. There is no evidence presented to suggest that the zinc oxide of the prior art might not be a Lewis acid simply argumentation that it hasn't been admitted.

Applicant's arguments that metals such as nickel used in the prior art catalyst teach away from their use in an FCC environment while including claims 16 and 17 reciting the presence thereof, are not persuasive. There is no argument made that the disclosure of claims 16 and 17 are a motivation to use nickel. The recitation of claims 16 and 17 simply contradicts applicant's arguments that the inclusion of such metals in the prior art somehow excludes the prior art from the scope of the instant inventions.

Applicant's arguments that the examiner does not take into account a possible sodium content of the non zeolitic components of the prior art composition is untenable. The prior art clearly discloses a sodium content of the Zeolite Y component and does not disclose a sodium content of the remaining components. The first fact suggesting that the prior art is aware of the importance of sodium content and the second suggesting that the remaining components do not contain significant amounts thereof. If applicant were permitted to argue that any composition could contain any amount of an unrecited ingredient, any rejection could be simply overcome by argument. However, the instant situation is clear. There is no evidence of record that the other components of the prior art contain sodium and there is convincing evidence of record

that the prior art contains on the order of 0.075% sodium in total. The preponderance of the evidence supports the factual finding that the composition of Nakaoka et al has about 0.075% sodium.

Applicant's arguments attempting to demonstrate the inability to physically combine the disclosures of Chen et al and Nakaoka et al are unpersuasive. The examiner has clearly shown how one of ordinary skill in the art would apply specific teachings of Chen to modify the composition of Nakaoka et al Chen disclosure that smaller particles are more practical that larger for use in fluidized bed operations, rather than teach away from the instant invention actually points the way for one of ordinary skill in the art to arrive at the invention of the instant claims.

In conclusion, applicant's reliance on the intended future use in a fluid cracking catalyst unit used in cracking hydrocarbon feedstock containing organic sulfur containing compounds is misplaced. The instant claims are drawn to a catalyst composition. The primary reference discloses a catalyst composition differing only in particle size. The statement of the rejection clearly shows that modifying the particle size to fall within the range of the instant claims would have been obvious to one of ordinary skill in the art as that particle size is most efficient for use in any fluidized bed operation of which an FCC unit as only an example.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/David M Brunsman/

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